

Tungaloy

Member IMC Group

Keeping the Customer First

Tungaloy Report No. 383-E

MILLLINE New PVD Coated Grade for Milling

NEW!

AH130

PREMIUMTEC
TUNGALOY

Optimal solution for stainless steel machining!



New PVD Coated Grade for Milling

AH130

Stable machining for stainless steels

Features

Special Surface Technology

PREMIUMTEC

TUNGALOY

Smooth insert surface prevents chip adhesion and improves chip flow.

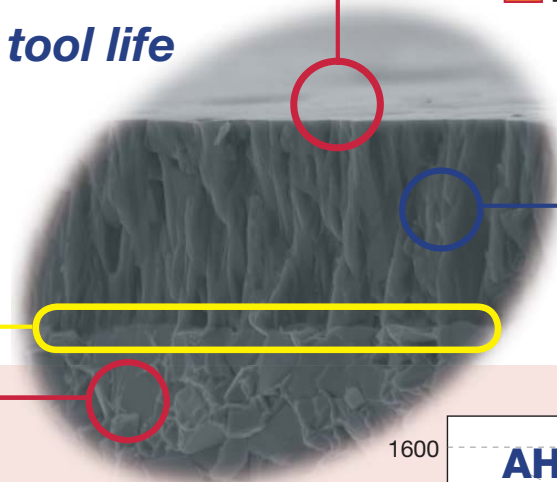
Excellent adhesion strength

Prevents coated layer from peeling off
 → **Stable tool life**

Flash-coat

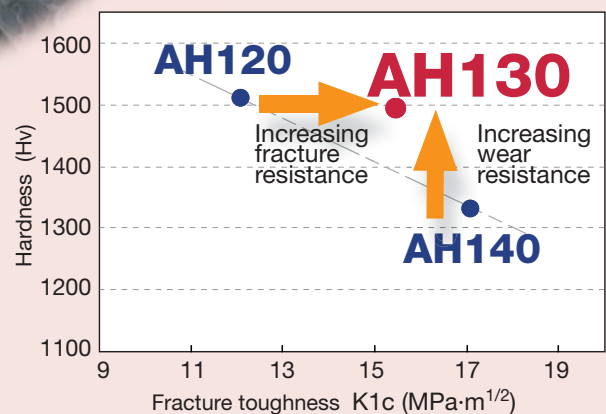
(Ti,Al)N based PVD coated grade

Excellent anti-welding and -oxidation properties
 → **Super wear resistance**



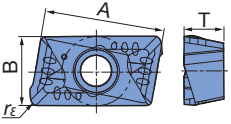
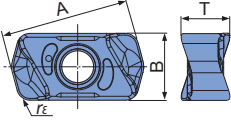
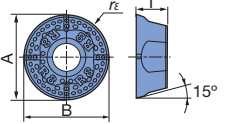
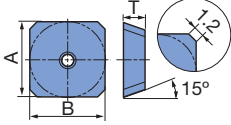
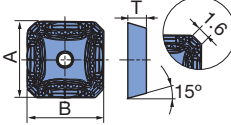
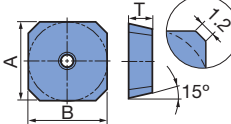
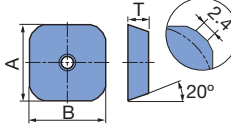
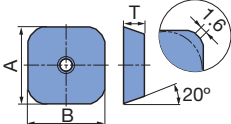
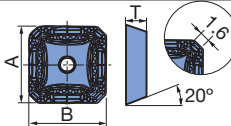
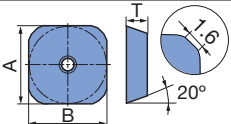
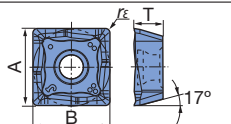
Unique substrate

Excellent balance of hardness and toughness
Hard wearing with anti-chipping properties



Application	ISO Application code	Substrate			Coating layer		Features
		Specific gravity	Hardness (HRA)	Transverse rupture strength (GPa)	Main composition	Thickness (μm)	
M Stainless	M20 ~ M30	14.1	90.5	3.0	Flash -Coat (Ti,Al)N base	3	For steels & stainless steels Excellent performance and reliability when applied to tough machining applications.
P Steels	P30 ~ P40						

Inserts

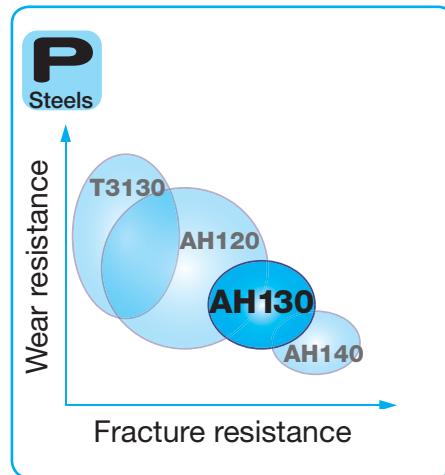
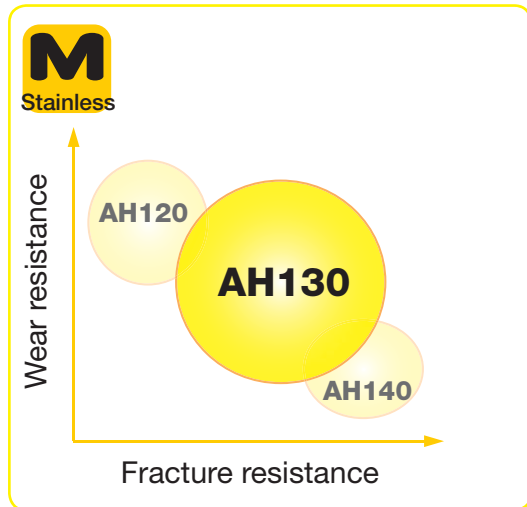
Shape	Cat. No.	Accuracy	Honing	Grade	Dimensions (mm)				Applicable cutter
				AH130	A	B	T	r _ε	
	ASMT11T304PDPR-MS	M	with	●	11.6	6.7	3.7	0.4	TPS11 EPS11
	ASMT170508PDPR-MS	M	with	●	16.9	9.8	5.6	0.8	
	LNMU0303ZER-MJ	M	with	●	11.59	6.0	4.29	1.2	EXN03
	LNMU0303ZER-ML	M	with	●	11.59	6.0	4.29	1.2	
	RDMT1606ZDPN-MJ	M	with	●	16.8	16.8	6.35	8	TRD16 ERD16
	SDKN42ZTN (SDKN1203AETN-12)	K	with	●	12.7	12.7	3.18	-	TMD4400 EMD4400
	SDKR42ZPN-MS (SDKR1203AEPN-MS)	K	with	●	12.7	12.7	3.18	-	TMD4400 EMD4400
	SDKN53ZTN (SDKN1504AETN)	K	with	●	15.875	15.875	4.76	-	TMD5400
	SEEN1203AGTN	E	with	●	12.7	12.7	3.18	-	TME4400 EME4400
	SEEN1203AGTNCR	E	with	●	12.7	12.7	3.18	-	TME4400 EME4400
	SEKN1203AGTN	K	with	●	12.7	12.7	3.18	-	
	SEKR1203AGPN-MS	K	with	●	12.7	12.7	3.18	-	TME4400 EME4400
	SEKN42AFTN (SEKN1203AFTN)	K	with	●	12.7	12.7	3.18	-	-
	SWMT1304PDPR-MJ	M	with	●	13.6	13.6	5	0.8	TPW13 EPW13
	SWMT1304PDPR-MS	M	with	●	13.6	13.6	5	0.8	

● : Stocked items

Shape	Cat. No.	Accuracy	Honing	Grade	Dimensions (mm)				Applicable cutter
				AH130	A	B	T	r _ε	
	SWMT13T3AFPR-HJ	M	with	●	14.7	14.7	4	1.5	TAW13 EAW13
	SWMT13T3AFPR-MJ	M	with	●	13.9	13.9	4	1.5	TAW13 EAW13
	SWMT13T3AFPR-MS	M	with	●	14.1	14.1	4	1.0	
	TEEN32ZTR (TEEN1603PETR)	E	with	●	-	9.525	3.18	0.8	TSE3000 ESE3000
	TEEN43ZTR (TEEN2204PETR)	E	with	●	-	12.7	4.76	1.0	TSE4000 ESE4000
	TPKN43ZTR (TPKN2204PPTR)	K	with	●	-	12.7	4.76	-	TSP4000
	WPMT06X415ZPR-ML	M	with	●	9.525	6	4.2	1.5	TXP / EXP06
	WPMT080615ZPR-ML	M	with	●	12.87	8	6.35	1.5	TXP08 EXP08
	WPMT080615ZSR	M	with	●	12.87	8	6.35	1.5	
	WPMT090725ZPR-ML	M	with	●	15	9	7	2.5	TXP09 EXP09
	WPMT090725ZSR-MH	M	with	●	15	9	7	2.5	

● : Stocked items

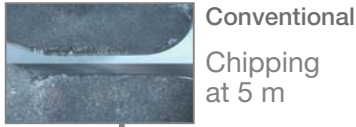
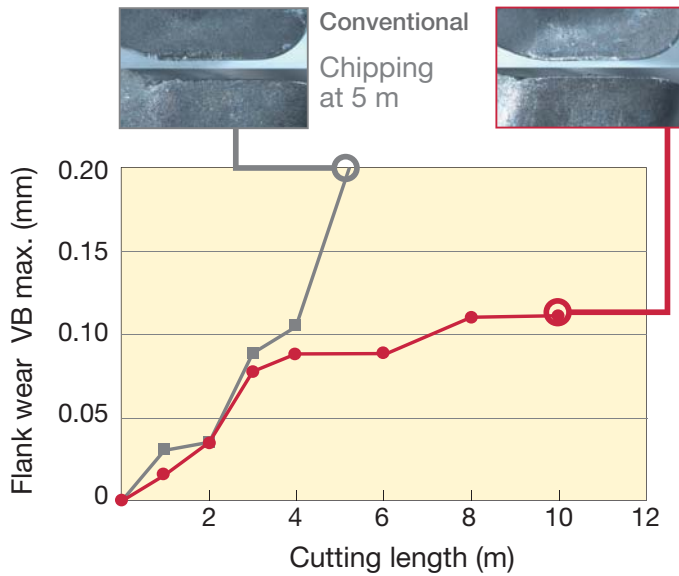
Application area



Cutting conditions

Work materials	Hardness	Grade	Cutting speed V _c (m/min)
Steels S55C, SCM440 etc. (C55, 42CrMo4 etc.)	~ 300 HB	AH130	150 (80 ~ 200)
Stainless steels SUS304, SUS316 etc. (X5CrNi18-9, X5CrNiMo17-12-2 etc.)	~ 250 HB		150 (80 ~ 200)

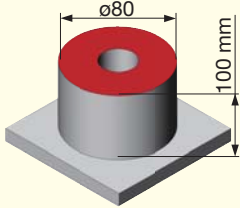
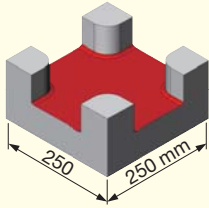
Cutting performance



Cutter : EXN03R025M25.0-05 ($\phi 25$, $z = 5$)
 Insert : LNMN0303ZER-MJ
 Grade : AH130
 Work material : SUS304 / X5CrNi18-9 (200HB)
 Cutting Speed : $V_c = 100$ m/min
 Feed per tooth : $f_z = 0.3$ mm/t
 Depth of cut : $a_p = 0.5$ mm
 Width of cut : $a_e = 10$ mm
 Coolant : Dry

Tool life improved by 250%!

Practical Examples

Name of workpiece		Hydraulic parts	Parts of machine structure
Cutter		TAW13R100M31.7-05	TXP08063RA
Insert		SWMT13T3AFPR-MJ	WPMT080615ZPR-ML
Grade		AH130	AH130
Workpiece material		SUS316 / X5CrNiMo17-12-2	SUS304 / X5CrNi18-9
			
Cutting conditions	Cutting speed: V_c (m/min)	100	200
	Feed per tooth: f_z (mm/t)	0.2	0.5
	Depth of cut: a_p (mm)	2.0	1.0
	Cutting width: a_e (mm)	55	~ 80
	Method of machining	Face milling	Engraving
	Coolant	Dry	Dry
Machine		Horizontal machining center BT50	Vertical machining center BT50
Results		Quantity of machining AH130 : 5 Competitor : 2.5 200% tool life! Drastically reduced the chipping, doubled tool life!	Cutting time AH130 : 120 m Competitor : 40 m 300% tool life! 2.7 times efficiency, tripled tool life!



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